

Remarks

The Applicants note with appreciation the withdrawal of the previous rejections.

The Applicants have amended all of the claims as described below.

Claim 15 has been amended to include the subject matter of Claims 23 and 24. Thus, Claim 15 now recites a preform for vacuum assisted injection molding comprising a plurality of stacked and integrated substrates including at least one reinforcing carbon fiber substrate. Claims 23 and 24 have accordingly been cancelled.

Claim 15 has also been amended to recite a mean gap between adjacent reinforcing carbon fiber yarns in a range of 0.1 to 1 mm. Support may be found in the Applicants' Specification beginning at page 53, line 25 and extending through page 54, line 24. Claim 15 has further been amended to recite that the interlamina-toughening resin material contains thermoplastic polyetherimide, polyphenyleneether or polyethersulfone as a main constituent. Support may be found in the Applicants' Specification on page 66 at lines 1-20, for example.

Finally, Claim 15 has been amended to recite that the resin material is studded at least on a surface of the reinforcing carbon fiber substrate. Support may be found in Claim 19.

Claims 16-19 and 22 have been amended to account for the change to Claim 1. As mentioned above, Claims 23 and 24 have been cancelled. Entry into the official file and consideration on the merits is respectfully requested.

Claims 15-17 and 22-24 stand rejected under 35 U.S.C. §103 over the hypothetical combination of Isley with Nishimura '506 hypothetically combined with Nishimura '160. The Applicants note with appreciation the Examiner's detailed and helpful comments theoretically applying those publications to Claims 15-17 and 22-24. However, the Applicants respectfully

submit that even if one skilled in the art were to make the hypothetical combination, the resulting combination would still fail to teach or suggest the subject matter of those claims.

The rejection frankly acknowledges that Nishimura '160 does not specifically mention a resin material provided at 2 to 17% by weight at least on a surface of the reinforcing fiber structure. Thus, the rejection turns to Nishimura '506 for teachings including the resin material. The Applicants agree that there is a disclosure of bonding material in Nishimura '506. However, there is a serious problem. In particular, Nishimura '506 discloses that the bonding material has a low melting point. This may be found in column 3, beginning at line 60, wherein Nishimura '506 states:

The thermoplastic polymer constituting the bonding material is a polymer having a relatively low melting point such as nylon, copolymerized nylon, polyester, vinylidenechloride and vinylchloride.

One skilled in the art would learn from these teachings that the bonding material of Nishimura '506 is a low thermal resistance material having a glass transition temperature of 100° C or lower. This is sharply contrasted to the claimed resin material as recited in Claim 15 including polyetherimide, polyphenyleneether and polyethersulfone, all of which have a glass transition temperature that is greater than 200° C as a main constituent. Thus, one skilled in the art would be lead away from the Applicants' claimed resin materials when looking to Nishimura '506.

This is important because use of those materials in Nishimura '506 prevents the production of a preform that has a balance at a high level of formation stability, handling stability (easiness of lamination), thermal resistance and impact resistance. In sharp contrast to the bonding materials of Nishimura '506, the Applicants' claimed bonding materials permit high levels of not only thermal resistance, but impact resistance. Therefore, even if one skilled in the art were to hypothetically combine Nishimura '506 with Nishimura '160, the resulting material

would contain the low melting point thermoplastic polymers of Nishimura '506 as the bonding material. Those low melting point thermoplastic polymers do not disclose, teach or suggest the Applicants' claimed polyetherimide, polyphenyleneether or polyethersulfone as a main constituent. Therefore, the Applicants respectfully submit that the combination of Nishimura '506 with Nishimura '160 would still fail to teach or suggest the subject matter of Claims 15-17 and 22-24.

There is a further problem with the hypothetical combination inasmuch as Nishimura '506 teaches that it is not preferred that the bonding material is a powder. Nishimura '506 makes this clear in column 2, lines 24-33. In sharp contrast, Isley discloses that the resin is impregnated into the substrate as disclosed at column 6, lines 15-19 of Isley. In any event, neither reference discloses that a powder as a main constituent of which is a specified thermoplastic resin is studded on a surface of the substrate as recited in Claims 15-17 and 22-24. In any event, Isley fails to provide disclosure, teachings or suggestions that there could or should be a resin material containing polyetherimide, polyphenyleneether or polyethersulfone as a main constituent. Therefore, even if one skilled in the art were to further combine Isley with Nishimura '506 and Nishimura '160, the resulting preform would not be applicable to Claims 15-17 and 22-24. Withdrawal of the rejection as it applies to Claims 15-17 and 22 is respectfully requested.

Claim 18 stands rejected under 35 U.S.C. §103 over the further hypothetical combination of Lewis and Bockrath with Isley, Nishimura '506 and Nishimura '160. The Applicants respectfully submit that neither of Lewis nor Bockrath cures the deficiency set forth above with respect to Isley, Nishimura '506 and Nishimura '160. For that reason alone, the Applicants respectfully submit that the combination of the five references is inapplicable to Claim 18. Moreover, Claim 15, upon which Claim 18 depends, recites that the carbon yarns have a mean

gap between adjacent reinforcing carbon fiber yarns and a range of 0.1 to 1.0. Although Lewis may generally point to a gap, there is nothing in Lewis that discloses the claimed gap and that there could or would be any advantage to having the claimed gap. There is nothing in Lewis that teaches or suggests that the gap could or would improve flexibility or pliability. Also, there is no disclosure in Lewis as to the effect of improving the impregnation properties of a preform. Withdrawal of the rejection of Claim 18 is respectfully requested.

Claim 19 stands rejected over the hypothetical combination of Heck with Isley, Nishimura '506 and Nishimura '160. The Applicants respectfully submit that Heck does nothing to cure the deficiency set forth above with respect to Isley, Nishimura '506 and Nishimura '160. Withdrawal of the rejection Claim 19 is respectfully requested.

Claims 15 and 22-24 stand rejected under 35 U.S.C. §103 over the hypothetical combination of Nishimura '506 with Isley. The Applicants respectfully submit that the rejection is moot with respect to cancelled Claims 23 and 24. In any event, the Applicants have already established that hypothetically combining Nishimura and Isley with Nishimura '160 fails to teach or suggest the subject matter of Claims 15 and 22. Thus, hypothetically combining Nishimura '506 with Isley would suffer the same deficiencies. Therefore, that combination is inapplicable to Claims 15 and 22.

Claims 16 and 17 stand rejected under 35 U.S.C. §103 over the hypothetical combination of Nishimura '160 with Nishimura '506 and Isley. The Applicants have already established that hypothetically combining Isley and Nishimura '506 with Nishimura '160 would not teach or suggest the subject matter of Claims 16 and 17. Therefore, merely reversing the order of the combination would have the same result. There still would be no teaching or suggestion of the

Applicants' claimed resin material, for example. Withdrawal of the rejection is respectfully requested.

Claim 18 stands rejected under 35 U.S.C. §103 over the further hypothetical combination of Lewis and Bockrath with Nishimura '160, Nishimura '506 and Isley. The Applicants respectfully submit that Lewis and Bockrath failed to cure the deficiency set forth above with respect to Nishimura '160, Nishimura '506 and Isley. Withdrawal of the rejection is respectfully requested.

Claim 19 stands rejected under 35 U.S.C. §103 over the further hypothetical combination of Heck with Nishimura '160, Nishimura '506 and Isley. The Applicants respectfully submit that Heck failed to cure the deficiency set forth above with respect to Nishimura '160, Nishimura '506 and Isley. Withdrawal of the rejection is respectfully requested.

In light of the foregoing, the Applicants respectfully submit that the entire Application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,



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